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this handout and some of the references quoted at
www.unice.fr/dsl/tobias.htm

Who is afraid of crazy rules?

(1) purpose
- a. Bach & Harms (1972) have coined the term *crazy rule*:
  processes that make no phonetic sense
- b. cases reported in the literature are difficult to asses:
  - data are difficult to control (not well-known languages)
  - the synchronic activity of the processes may be called into doubt
- c. Sardinian offers a process whose added value is to occur in external sandhi:
  - l → ʁ / V__V
  - external sandhi guarantees the synchronically active character of the process
- d. two opposite ways to go in phonological theory
  1. small is beautiful: many alternations observed are not grammar-driven, including crazy rules
  2. big (grammar) is beautiful: all alternations are grammar-driven, including crazy rules. Grammar does not care for the symbols that are manipulated.
- e. evaluate the impact of crazy rules on phonological theory in general, and on OT in particular.
- f. diachronic aspect: crazy rules are not born crazy, they become crazy through (regular) evolution of the symbols manipulated.

1. Crazy rules

(2) some crazy rules reported in the literature
- a. eclectic literature:
  Bach & Harms (1972), Buckley (2000, 2003), Hyman (2001)
- b. crazy rules are typically used in order to argue against the phonetic determinism of phonological rules, and in favour of the existence of an autonomous phonology, i.e. a computational system that does not care for the phonetic properties of the items that it manipulates (Hyman 2001). Phonology is phonetically arbitrary, as Bermúdez-Otero (2006:498) puts it.
- c. some cases
  1. Oboyan dialect of Russian (Bach & Harms 1972)
     after palatal consonants, pretonic non-high vowels appear as [i] if the following stressed vowel is [ɛ,ɔ,a], while they are [a] in case the following stressed vowel is [e,o,i,u].
  2. Southern Pomoan (native American, California) (Buckley 1994, 2000, 2003)
     i → u / d__
  3. Ndebele (Bantu, Zimbabwe) (Hyman 2001)
     p^h, β, b, mb → $\widehat{t\int}$, $\widehat{t\int}$' (ejective), $\widehat{d\text{ʒ}}$, $\text{ɲ}\widehat{d\text{ʒ}}$ / __w

(3) crazy rules are supposed to show that
   a. "[p]honological systems are the way they are not only because of the phonetic conditioning of sound changes, but also because of telescoping, restructuring (e.g., by analogy), and borrowing. The result can be quite 'unnatural'."
   Hyman (2001.147)
   b. phonological processes are not natural
   Anderson (1981): Why phonology is not natural
   c. there is no phonetic determinism

(4) but there is hope, since crazy rules are not born crazy
(Bach & Harms 1972)
   a. rules are plausible at first: the trigger and the effect are plausibly related phonetically
   b. but then a diachronic substitution of some of their vocabulary
   X, Y, C in X → Y / C
   occurs that creates craziness
   c. without the language reacting against this departure from (phonetic) transparency
   d. ==> **craziness is a property of rule change, rather than of rules**
   "some rather strong plausibility conditions seem to play a crucial part in determining what rules a language can initiate, these same conditions do not seem to bear any relation to changes that take place in rules" (Bach & Harms 1972:6)

2. Reactions on crazy rules: in diachronic quarters and logical possibilities

(5) reactions on crazy rules I:
in diachronic quarters: intermediate (asterisked) stages
   a. Ndebele (Bantu, Zimbabwe) (Hyman 2001)
   p^h, β, b, mb → $\widehat{tʃ}$, $\widehat{tʃ'}$ (ejective), $\widehat{dʒ}$, $ɲ\widehat{dʒ}$ / __w
   apparent palatalization of labials.

   Hyman argues for a diachronic scenario:
   *Bwa > Bɥa > Bj(w)a > BJ(w)a > J(w)a
   (B stands for labials, J for palatals)

   That is, the palatalization of labials is a mirage. No labial is ever palatalized: the palatal consonants observed are not the continuators (diachronically or synchronically speaking) of the labials. Rather, they are the result of a strengthening of yod in strong post-consonantal position.
   b. velar softening
   k → s / __i
   electri[k] - electri[s]-ity
   1. regular palatalization: k → $\widehat{ts}$ / __i
   2. (context-free) deaffrication: $\widehat{ts}$ → s

c. French palatalization
caru > [ʃ] cher, gamba > [ʒ] jambe
1. k,g → t͡ʃ, d͡ʒ / __a
2. (context-free) deaffrication: d͡ʒ → ʒ

d. **==> this may (and probably is) all correct, but it does not tell us how synchronic grammar handles crazy alternations.**

(6) three logical possibilities of how alternations relate to phonological computation:
an alternation may
a. be the result of online phonological computation
k → s / __i
==> a synchronically active rule
b. be the result of grammatical activity which however is not phonological
1. allomorphy
two items stored, selection according to morphological context
two variants for this root are stored in the lexicon:
- electri[s] - selected before the suffix -ity
- electri[k] - selected elsewhere
2. suppletion
two items stored, selection according to grammatical context
good, better etc.
c. be the result of extra-grammatical activity
1. analogy
one lexical item, transformation under the pressure of other -ik - -ic-ity pairs.
2. lexicalization
electric and electricity are two independent lexical entries:
no concatenation, no grammatical computation.

3. Small is beautiful

(7) two broad attitudes in synchronic quarters
a. small is beautiful
==> suspicious or crazy rules are not the result of phonological activity (i.e. of phonological computation).
b. big is beautiful
suspicious or crazy rules are the result of phonological computation
==> phonological computation does not care for the symbols manipulated

(8) small is beautiful I
a. the two Natural Phonologies
(offsprings of David Stampe's Ph.D: Stampe 1972)
1. Natural Phonology
Donegan & Stampe (1978, 1979), Dressler (1974, 1984), Hurch & Rhodes (eds.) (1996), Dziubalska-Kołaczyk (2002)
2. Natural Generative Phonology
Vennemann (1972a,b, 1974a,b), Hooper (1975, 1976)

b. P-rules vs. MP-rules
two distinct computational systems
1. P-rules (phonological rules)
(Stampe: processes = natural, innate, productive, unsuppressible and effect minimal structural changes (hence they apply in loanword adaptation and interfere when non-native languages are spoken)
govern alternations that
- make only reference to information that is present in the signal AND
- are exceptionless AND
- do not make reference to any extra-phonological (morphological) information
==> A → B / C where A, B and C are phonological objects
2. MP-rules (morpho-phonological rules)
[revival of the structuralist morpho-phonemic level]
(Stampe: rules = conventional, learned, dispensable (they do not interfere in loanwords and when foreign languages are spoken) and may be responsible for structural changes that involve more phonetic distance)
govern alternations that
- are either not surface-true
- or not exceptionless
- or make reference to morphological information
==> A → B / C where A,B are phonological, but C morphological

(9) small is beautiful II
Government Phonology
(Kaye et al. 1990, Kaye 1995, Gussmann 2007)
a. endorses two of the three conditions for phonological processes: an alternation can only be due to phonological computation if
1. it is exceptionless AND
2. does not make reference to extra-phonological (i.e. morphological) information
b. does not endorse the third condition:
conditioning factors are *never* phonetic: rather, they are phonological.
c. adds another condition regarding the relationship between the structural change and the structural description:
"non-arbitrariness:
There is a direct relation between a phonological process and the context in which it occurs" (Kaye et al. 1990:194)
d. is not explicit on what an alternation is the result of if it does not qualify for being phonological: another computational system (morpho-phonology), analogy, allomorphy, lexicalization?

(10) small is beautiful III
work by Joaquim Brandão de Carvalho
a. Carvalho (2002a,b, 2004, 2006)
b. takes analogy as a serious player, doubts that there is a clear-cut distinction between grammatical computation (grammar) and analogy (non-grammar).

(11) small is beautiful - summary
disqualifying properties: an alternation cannot be phonological
a. if it has conditioning factors that are non-phonological (i.e. morphological) OR
b. if it is not 100% regular OR
c. if there is no plausible causal relationship between the change observed and the triggering context

4. Big is beautiful

(12) big is beautiful
Hale & Reiss (2000a,b, 2008)
Hyman (2001)
a. phonological computation does not care at all for the objects that are manipulated
b. or for the causal relationship between the triggering context and the change observed
c. anything can become anything in any context
n → ŋ / __k,g
is as good a phonological process as
n → ŋ / __p,b or
n → p / __ŋ
d. substance (= melody) is entirely divorced from phonological computation
1. substance are those properties of sound that are represented below the skeleton in a classical autosegmental representation:
melodic primes (i.e. binary features, privative primes etc.)
2. computation does not care for substance
3. substance is phonetics and hence John Ohala's world: phonology must not do the labour a second time (this would be "substance abuse").

(13) properties of phonology that are not substance-based and hence
- non-arbitrary
- governed by language-specific and universal restrictions on the computational system
a. everything that is above the skeleton, i.e. syllable structure and the like:
there is no phonetic rationale for syllabic conditioning. Syllable-related processes are thus truly phonological in kind, and the occurring and non-occurring patterns must follow from genuinely phonological restrictions on the computational system.
b. formal properties of computation
grammatical computation cannot produce outlandish patterns such as "stress every prime-numbered syllable".

(14) so what about substance-related universals?
There are many logically possible patterns do not occur in natural language.
Hale & Reiss' answer:
a. substance is phonetics, and non-occurring patterns are due to the fact that phonetics does not produce them.
b. Hale & Reiss (2000a, 2008:158f) endorse the scenario according to which sound change is due to misperception in the course of first language acquisition.
c. a rule such as n → ŋ / __p,b could thus well exist in phonological computation, but in fact does not because phonetics/misperception do not produce the relevant pattern.

d. ==> substance-related universals are accidental, rather than systematic gaps at the phonological level:
they are due to the fact that children's misperception is based on universal properties of the phonetic signal and universal properties of the human system of sound perception.

(15) big is beautiful - summary
a. the *transformation of melody* is arbitrary:
there are no restrictions on X, Y, C in X → Y / C
b. all other properties of phonology are not: they are under grammatical control
1. syllable structure
2. internal structure of segments
3. melodic properties that have got nothing to do with the input-output relation:
natural classes.
Rules may refer to natural classes of segments in either the definition of the input set or the definition of the triggering items. A naturalness requirement for these natural classes can be maintained even if the transformation of segments (or of a natural class of segments) into some other segments is arbitrary. This distinction is suggested by Bermúdez-Otero & Börjars (2006).
Example (suggested by Ricardo Bermúdez-Otero): the ruki rule (in IE diachrony, Indian and (Balto-)Slavic develop ʃ from s when followed by either r, u, k or i).
The change from s to ʃ is covered by the arbitrariness of melodic transformations, and so is the causal relationship between the triggering environment and the effect observed. However, the fact that the triggering environment is a non-natural disjunction is not, and this may cause the ruki-rule to be banned from the set of possible phonological events.

(16) good match with crazy rules
a. crazy rules are always melodically crazy
b. there are no syllabically crazy rules on record (as far as I can see):
1. closed syllable lengthening
2. open syllable shortening
3. compensatory shortening
4. compensatory lengthening when a coda consonant disappears, never when an onset consonant is lost (Hayes 1989)
or other monsters of the kind do not exist

4. Who is afraid of crazy rules?

(17) mid-field position between the two extremes
   a. all other phonological theories are located somewhere in a midfield position between the two extremes "small is beautiful" and "big is beautiful".
   b. general trend since SPE: make phonology smaller
      1. SPE was in instantiation of "big is beautiful"
      2. this was one of the major arguments against it in the 70s-80s:
         - overgeneration
         - Natural Phonologies
      3. consensus that phonology needs to be restricted: phonology must not be able to transform anything into anything in any context.
         Problem identified in the 9th chapter of SPE, remedy suggested: markedness.
   c. restricting the expressive power of SPE
      1. revolutionary: the Natural Phonologies
      2. revisionist (= mainstream): Kiparsky
         - restrictions on underlying forms (Alternation Condition)
         - restrictions on computation: Strict Cycle Condition

(18) reaction on crazy rules in synchronic quarters
   a. crazy rules are disqualified: they are rejected outside of the phonological realm by one of the small-is-beautiful criteria.
      This is also true for midfield-theories.
   b. rejecting crazy rules is easy because they typically violate one of the small-is-beautiful conditions.
   c. who is afraid of crazy rules?
      ==> everybody except big-is-beautiful people
      crazy rules cannot be taken seriously: were they considered the result of phonological computation, they would explode all restrictions on the computational system.
      ==> crazy rules, keep away form my phonology!

5. The Sardinian evidence

(19) why the Sardinian crazy rule is different
   a. l → ʁ / V__V[1]
   b. data are controlled for by a large literature
      - diachronically
      - diatopically
      (- sociologically)
   c. it occurs in external sandhi
      the l of l-initial words appears as ʁ/ʕ iff the preceding word ends in a vowel.
   d. is explicitly witnessed one hundred percent regular (across the lexicon, across speakers and across utterances) in external sandhi in the varieties of Genoni, Sestu Campidanese, San Vito.[2]

(20) background
   a. Sardinian dialects constitute a well-studied body of evidence: dialectologists produce descriptions since Wagner (1941); Contini (1987) offers a particularly detailed picture, and ongoing work is still done on the island. All data are exclusively oral and gained through elicitation. Also, sociological factors and language contact are typically controlled for.[3]
   b. phonological rules that apply across word boundaries (which are thus treated as if they were not there) is an areal feature that Sardinian shares with Middle Italian dialects: it is observed for example in Tuscan and Corsican (e.g. Giannelli & Savoia 1978, Marotta 2008, Contini 1986, Dalbera-Stefanaggi 2001).

[1] Descriptions based on fieldwork do not agree on whether the result of this process is a uvular [ʁ] or a pharyngeal [ʕ] fricative. Bottiglioni (1922:37), Pellis (1934:68), Wagner (1941:§188), Bolognesi (1998:465) and Molinu (forth) report [ʁ], while Contini (1987) and Cossu (2000) transcribe [ʕ]. Contini (1987 I:355 note 2, 2006:192), however, admits variation between [ʁ] and [ʕ] based on the vocalic context and speech rate. This review of the dialectological literature is due to Molinu (forth:4, note 7). Below I only talk about [ʁ]: the variation is irrelevant for the argument, and a pharyngeal result would only make the rule crazier.

[2] Authors are explicit on this fact. Contini (1987 I: 485f notes 47f) for example warrants absolute regularity for Nureci (point of inquiry 195), Nuragus (205), Isili (208), Nurri (210) and Orroli (212) (all l ~ ʁ), as well as for San Vito (l ~ ʔ).

[3] The discussion below closely follows Molinu (forth), where more detailed material and literature can be found. Lucia Molinu has also provided expertise regarding some more detail that is mentioned in this section.

(21) Genoni Sardinian l → ʁ / V__V
in external sandhi

a. in external sandhi after C-final words

##__	C#__V	gloss
'lampaðaza	in 'lampaðaza	June, in June
'lettu	i 'llɛttuzu	bed, the beds
'longu	'vu 'llongu	long, it was long

b.

##__	C#V	gloss
o'riɣaza	iz o'riɣaza	ear, the ears
aʃu'ɣau	'kaɳḍu 'vuð aʃu'ɣau 'bɛ̃i	dried, when (the wheat) had well dried

c. in external sandhi after V-final words

##__	V##__V	gloss
'laðru	su 'ʁaðru	bacon, the bacon
'liŋgwa	sa 'ʁiŋgwa	tongue, the tongue
'littɛra	ũa 'ʁittɛra	letter, a letter
'loŋga	'braβa 'ʁoŋga	long, long beard
'limɔ̃i	'binti 'ʁimɔ̃izi	lemon, twenty lemons
'lampaðaza	ɛ kkomin't͡sau 'ʁampaðaza	June, June has just begun

(22) Genoni Sardinian l → ʁ / V__V
morpheme-internally in diachronic evolution (i.e. when comparing to the Latin origin)

a. word-internally in intervocalic position V__V

Genoni	Northern Sardinian	Latin	gloss
'piʁu	'pilu	pilu(s)	hair
't͡ʃeʁu	'kelu	caelu(m)	sky
'daʁɔri	'dɔlɔrɛ	dolori(s)	pain
'oʁia	'olia	oliva	olive

b. there is no evidence from other word-internal positions
   1. branching onsets: unrelated change, i.e. l > r
      lat. plenu(m) > 'prɛ̃u "full"
      flore(m) > 'frɔri "flower")
   2. internal coda position: l > r plus metathesis and compensatory gemination
      lat. culpa > 'kruppa "mistake"
   3. there is no evidence for final codas since there are no l-final words in Sardinian.

c. (22)a shows that at the very least there was a diachronic evolution which produced ʁ on the basis of a Latin lateral.
   It is interesting to note, then, that the end point of this evolution is identical with the result of the synchronically active process under (21)a-c that changes word-initial laterals into ʁ in external sandhi when preceded by a vowel-final word.

(23) diatopic variation in Sardinia
regarding word-initial l in external sandhi after V-final words[4]

	dialect	result	utterance-initial	V#__V	gloss
a.	North (Budduso)	l	'luna	sa 'luna	moon, the moon
b.	Genoni	ʁ	'latti	su 'ʁatti	milk, the milk
	Sestu Campidanese	ʁ	'luʒi	sa 'ʁuʒi	light, the light
c.	San Vito	ʔ	'lũʔã	sa 'ʔũʔã	moon, the moon
d.	Nurachi	zero	'limba	sa 'imba	tongue, the tongue
e.	Sanluri	w	'linna	sa 'winna	wood, the wood
f.	Cruccuris	β	'loŋgu	ũu gu'teɖɖu 'βoŋgu	long, a long knife
g.	Gesturi[5]	g^w	'leppuri	su 'gweppuri	hare, the hare

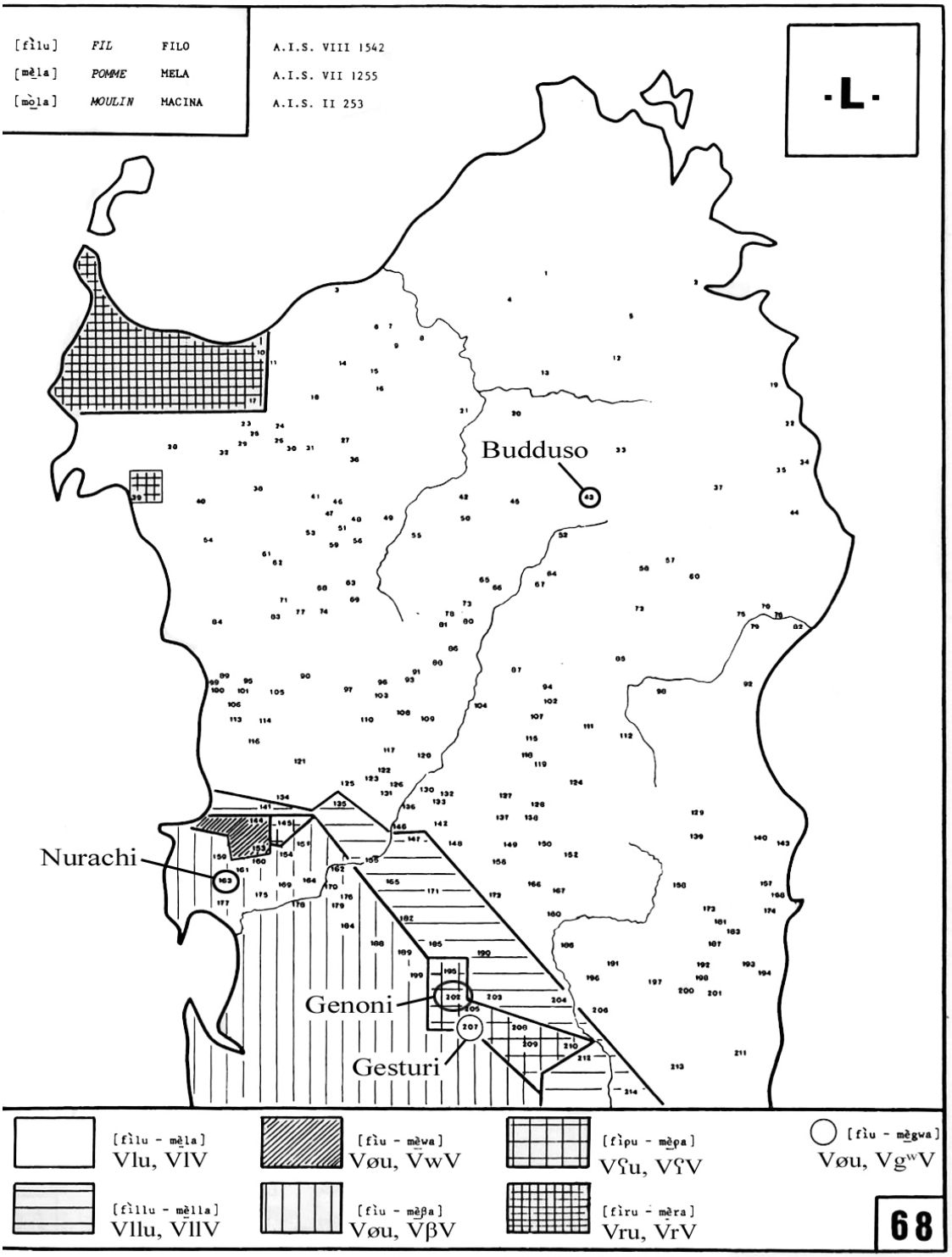
(24) regularity
a. 100%, explicitly avouched by the fieldworker[6]
l ~ ʁ in Genoni (Molinu 1998, forth) and Sestu Campidanese (Bolognesi 1998:43f)
l ~ ʔ in San Vito (Contini 1987 I:486, note 48)
b. elsewhere: cross-lexical variation (also across individual utterances)
- most frequent realisation in …V#__V… is the Northern lateral
- the resulting segments mentioned are less frequently observed

[4] Data are from Contini (1987 I:485f, Budduso, Nurachi, Gesturi, San Vito, but Contini does not represent the latter in his map that is shown below), Wagner (1941:§194, Sanluri, Cruccuris), Bolognesi (1998:43f, Sestu Campidanese), Molinu (forth, Genoni) (see also Virdis 1978:55ff). A very similar diatopic variation is found in Occitan dialects of the Massif Central (France) where Latin [l] appears as [ɬ], [w], [g^w], [g], [ɣ] and [ʁ] in intervocalic position (Dauzat 1938:63).

[5] There is some debate regarding the situation of g^w in external sandhi: Virdis (1978:26) provides the form quoted, but Contini (1987:486, note 47) says that g^w does not appear in external sandhi.

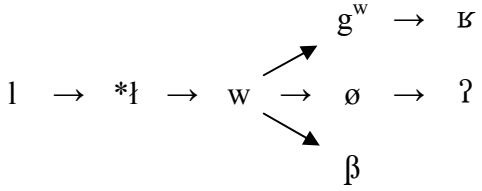
[6] Authors are explicit on this fact. Contini (1987 I: 485f notes 47f) for example warrants absolute regularity for Nureci (point of inquiry 195), Nuragus (205), Isili (208), Nurri (210) and Orroli (212) (all l ~ ʁ), as well as for San Vito (l ~ ʔ).

(25) Latin l in Sardinian according to Contini (1987 II: map 68)[7]



[7] Numbers are points of inquiry (villages) where Contini has done fieldwork. The map only shows word-internal intervocalic l in intervocalic position, and it systematically distinguishes between l before u (witness word: filu "thread") and before other vowels (witness word: mela "apple"). In the former context w and related reflexes are often missing altogether. Also note that "ρ" which Contini uses for the transcription in the Genoni area stands for ʕ.

(26) diachronic interpretation of the diatopic situation
   a. classical idea: the diatopic distribution of variation is the trace of diachronic evolution.
      That is, realizations of a common diachronically primitive item that appear in the neighbourhood of "extreme" outputs, i.e. those that are the most "distant" from the original segment, are intermediate stages that the "extreme" reflex went through.
   b. a number of hypotheses
      Wagner (1941:§196f), Virdis (1978:57), Contini (1987:355), Molinu (forth)
   c. (more or less) convergent diachronic scenario



(27) recall that crazy rules are not born crazy…
   a. the Sardinian case feeds Bach & Harms' (1972) perspective:
      the crazy modern situation is the result of a number of individual processes, each plausible taken by itself, which have piled up diachronically.
      l → X / V__V
      where X has changed over time without the grammar rebelling.
   b. also recall that this is the reaction on crazy rules in diachronic quarters anyway: (asterisked) intermediate stages.
   c. Bolognesi (1998:464ff): big is beautiful
      Bolognesi abandons any phonetic or phonological plausibility and any diachronic or diatopic reasoning: for him the present-day picture that is observed in Sardinia is the result of the Labovian mechanism whereby arbitrary variation in the signal is promoted to grammatical value in order to serve as a vector for social differentiation.
      That is, the alternations at hand are unnatural and arbitrary: anything can turn into anything without going through any "plausible" intermediate stage.
      The question is, then, whether "inherent variation" in the signal is able to produce ɣ when l or ɬ are the phonetic target.
   c. whatever the correct view, one thing is for sure:
      speakers do not object accommodating rules in their phonological grammar that relate l with any of the items that are shown under 0, be they the result of a "piled-up" diachronic evolution, or of pressure for social differentiation.
   d. therefore it is hard to see how the conclusion could be eluded that the alternations at hand are the result of synchronic online activity, i.e. produced by the computational system of the speakers and a piece of their knowledge of the phonology of their language.

(28) properties of the alternation:
it passes all small-is-beautiful filters
a. synchronic activity
guarantee for the synchronic activity and productivity of the processes.
b. 100% regular (at least in some villages)
c. no lexicalization
external sandhi rules out lexicalization: word sequences are not stored in the lexicon (except for idioms and the like).
d. no allomorphy
allomorphy is also ruled out: morphemes may select allomorphs, but words do not select "allo-words"
- also: allomorph selection is according to a **morphological** context
- here "allo-words" are selected according to a **phonological** context, i.e. V__V
e. no morpho-phonology
of course there is no morphological conditioning in external sandhi: the rule cannot be evacuated into morpho-phonology or some equivalent non-phonological computational system.

(29) the Sardinian crazy rule is produced by synchronic phonological computation.

Whatever the correct view on the role played by intermediate stages and the pile-up scenario
a. one thing is for sure:
speakers do not object accommodating rules in their phonological grammar that relate l with any of the items that are shown under 0, be they the result of a "piled-up" diachronic evolution, or of pressure for social differentiation.
b. therefore it is hard to see how the conclusion could be eluded that the alternations at hand are the result of synchronic online activity, i.e. produced by the computational system of the speakers and a piece of their knowledge of the phonology of their language.

6. Conclusion: small is beautiful and especially OT are in trouble

(30) consequences (general)
a. if the Sardinian crazy rule is
- synchronically active and
- the result of phonological computation
==> small is beautiful is properly falsified
b. at the melodic level,
1. there is no naturalness
2. there is no phonetic or phonological plausibility
3. there is no causal relationship between the triggering context and the change observed

(31) consequences for OT I:
finite number of constraints
a. if crazy rules are part and parcel of phonological computation, they need to be managed by constraints
b. the set of constraints, however, is supposed to be finite and universal:
if anything can be a crazy constraint there must be as many constraints as there are crazy rules, which makes the constraint set potentially infinite.
c. One way out would be to go along with SPE and mimic the diachronic evolution, which is not crazy, in the synchronic analysis.
1. velar softening:
1. k → t͡s / __i
2. t͡s → s
[Chomsky & Halle 1968:224]
2. this, however, will be difficult a strategy to implement in OT: a given constraint ranking (and hence even stratal versions of OT) is unable to produce intermediate derivational stages.
Harmonic Serialism (McCarthy 2007) could probably do the job.
d. facing this difficulty, Bolognesi (1998:464ff) simply gives up on the universal and finite ambition of the constraint set, admitting language-specific constraints.

(32) consequences for OT II:
markedness
a. another central tenet of OT is also impacted: markedness constraints
b. Bermúdez-Otero (2006) points out that if melodic properties of phonological processes are arbitrary, the entire conception of markedness constraints goes down the drain.
c. a reaction on this situation that is parallel to Bolognesi's is explored for example by Boersma (1998) and Bermúdez-Otero & Börjars (2006) who argue that markedness constraints are acquired/constructed on the basis of available data, rather than innate.
d. this solution also abandons the universality of the constraint set.

References
Items followed by the mention WEB are available at http://www.unice.fr/dsl/tobias.htm.

Anderson, Stephen 1981. Why phonology Isn't "Natural". Linguistic Inquiry 12: 493-539.
Bach, Emmon & R. T. Harms 1972. How do languages get crazy rules? Linguistic change and generative theory, edited by Robert Stockwell & Ronald Macaulay, 1-21. Bloomington: Indiana University Press.
Bermúdez-Otero, Ricardo 2006. Phonological change in Optimality Theory. Encyclopedia of language and linguistics, 2nd edition, vol.9, edited by Keith Brown, 497-505. Oxford: Elsevier.
Bermúdez-Otero, Ricardo & Kersti Börjars 2006. Markedness in phonology and in syntax: the problem of grounding. Lingua 116: 710-756.
Boersma, Paul 1998. Functional phonology: formalizing the interactions between articulatory and perceptual drives. The Hague: Holland Academic Graphics.
Bolognesi, Roberto 1998. The phonology of Campidanian Sardinian. Dordrecht: HIL.
Bottiglioni, G. 1922. Leggende i tradizioni di Sardegna. Texti dialettali in grafia fonetica. Genève: Léo S. Olschki.

Buckley, Eugene 1994. Theoretical aspects of Kashaya phonology and morphology. Stanford: CSLI Stanford University.

Buckley, Eugene 2000. On the naturalness of unnatural rules. UCSB Working Papers in Linguistics 9.

Buckley, Eugene 2003. Children's unnatural phonology. Proceedings of the Berkeley Linguistics Society 29: 523-534.

Carvalho, Joaquim Brandão de 2002. De la syllabation en termes de contours CV. Habilitation Thesis, Ecole des Hautes Etudes en Sciences Sociales, Paris. WEB.

Carvalho, Joaquim Brandão de 2002. Formally-grounded phonology: from constraint-based theories to theory-based constraints. Studia Linguistica 56: 227-263.

Carvalho, Joaquim Brandão de 2004. L'analogie est-elle un fait fonctionnel ou grammatical ? Le cas de l'apophonie portugaise. Corpus 3: 101-123.

Carvalho, Joaquim Brandão de 2006. Markedness gradient in the Portuguese verb : How morphology and phonology interact. Prosody and Syntax, edited by Ivan Fónagy, Yuji Kawaguchi & Tsunekazu Moriguchi, 157-174. Amsterdam: Benjamins.

Chomsky, Noam & Morris Halle 1968. The Sound Pattern of English. Cambridge, Mass.: MIT Press.

Contini, Michel 1986. Les phénomènes de sandhi dans le domaine sarde. Sandhi Phenomena in the Languages of Europe, edited by Henning Andersen, 519-550. Berlin: Mouton de Gruyter.

Contini, Michele 1987. Etude de géographie phonétique et de phonétique instrumentale du sarde. 2 vols. Alessandria: dell'Orso.

Contini, Michele 2006. Une frontière oubliée en domaine sarde ? Quaderni del dipartimento di linguistica 27: 183-198.

Cossu, M. G. 2000. Unité et stabilité phonétique dans les parlers sardes méridionaux. Ph.D dissertation, University Stendhal, Grenoble.

Dalbera-Stefanaggi, Marie-José 2001. La Corse au regard de la lénition consonantique: aires, strates, systèmes. Ajaccio: Piazzola.

Dauzat, A. 1938. Les altérations de l intervocalique dans le Massif Central. Essais de géographie linguistique. Nouvelle série 3: 50-90.

Donegan, Patricia & David Stampe 1978. The Syllable in Phonological and Prosodic Structure. Syllables and Segments, edited by Alan Bell & Joan Bybee Hooper, 25-43. Amsterdam: North Holland.

Donegan, Patricia & David Stampe 1979. The study of natural phonology. Current approaches to phonological theory, edited by Daniel Dinnsen, 126-173. Bloomington: Indiana University Press.

Dressler, Wolfgang 1974. Diachronic Puzzles for Natural Phonology. Papers from the parasession on Natural Phonology, edited by A.Bruck, R.Fox & M.La Galy, 95-102. Chicago: Chicago Linguistic Society.

Dressler, Wolfgang 1984. Explaining Natural Phonology. Phonology Yearbook 1: 29-51.

Dziubalska-Kołaczyk, Katarzyna 2002. Beats-and-binding phonology. Frankfurt am Main: Lang.

Giannelli, Luciano & Leonardo Savoia 1978. L'indebolimento consonantico in Toscana (I). Rivista Italiana di Dialettologia 2: 25-58.

Gussmann, Edmund 2007. The Phonology of Polish. Oxford: Oxford University Press.

Hale, Mark & Charles Reiss 2000. Phonology as Cognition. Phonological Knowledge. Conceptual and Empirical Issues, edited by Noel Burton-Roberts, Philip Carr & Gerard Docherty, 161-184. Oxford: Oxford University Press.

Hale, Mark & Charles Reiss 2000. Substance Abuse and Dysfunctionalism: Current Trends in Phonology. Linguistic Inquiry 31: 157-169.

Hale, Mark & Charles Reiss 2008. The Phonological Enterprise. Oxford: OUP.
Hayes, Bruce 1989. Compensatory Lengthening in Moraic Phonology. Linguistic Inquiry 20: 253-306.
Hooper, Joan 1975. The archi-segment in Natural Generative Phonology. Language 51: 536-560.
Hooper, Joan 1976. An Introduction to Natural Generative Phonology. New York: Academic Press.
Hurch, Bernhard & Richard Rhodes (eds.) 1996. Natural Phonology: The State of the Art. Berlin: Mouton de Gruyter.
Hyman, Larry 2001. The Limits of Phonetic Determinism in Phonology. *NC revisited. The Role of Speech Perception in Phonology, edited by Elizabeth Hume & Keith Johnson, 141-185. New York: Academic Press.
Kaye, Jonathan 1995. Derivations and Interfaces. Frontiers of Phonology, edited by Jacques Durand & Francis Katamba, 289-332. London & New York: Longman. Also in SOAS Working Papers in Linguistics and Phonetics 3, 1993, 90-126. WEB.
Kaye, Jonathan, Jean Lowenstamm & Jean-Roger Vergnaud 1990. Constituent structure and government in phonology. Phonology 7: 193-231. WEB.
Marotta, Giovanna 2008. Lenition in Tuscan Italian (Gorgia Toscana). Lenition and Fortition, edited by Joaquim Brandão de Carvalho, Tobias Scheer & Philippe Ségéral, 235-271. Berlin: de Gruyter.
McCarthy, John 2007. Hidden Generalizations: Phonological Opacity in Optimality Theory. London: Equinox.
Molinu, Lucia 1998. La syllabe en sarde. Ph.D dissertation, Université Sendhal de Grenoble.
Molinu, Lucia forth. La latérale intervocalique non géminée en sarde méridional. Analyse phonologique d'un phénomène dialectal. Vox Romanica.
Pellis, U. 1934. Cinquanta inchieste linguistiche n Sardegna. Bollettino dell'Atlante Linguistico Italiano 1: 49-76.
Stampe, David 1972. How I Spent my Summer Vacation. Ph.D dissertation, University of Chicago. Reproduced by the Indiana Linguistics Club in 1979.
Vennemann, Theo 1972. On the theory of syllabic phonology. Linguistische Berichte 18: 1-18.
Vennemann, Theo 1972. Sound change and markedness theory: On the history of the German consonant system. Linguistic change and generative theory. Essays from the UCLA Conference on historical linguistics in the perspective of transformational theory (1969), edited by R.P. Stockwell & R.K.S. Macaulay, 230-274. Bloomington: Indiana Univ. Press.
Vennemann, Theo 1974. Phonological concreteness in natural generative grammar. Toward tomorrow's linguistics, edited by Roger Shuy & Charles Bailey, 202-219. Washington, DC: Georgetown University Press.
Vennemann, Theo 1974. Words and syllables in natural generative grammar. Papers from the parasession on Natural Phonology, edited by A.Bruck, R.Fox & M.La Galy, 346-374. Chicago: Chicago Linguistic Society.
Virdis, M. 1978. Fonologia del dialetto campidanese. Cagliari: Edizioni della Torre.
Wagner, M. L. 1941. historische Lautlehre des Sardischen. Halle: Niemeyer.